

TITLE
DECODER SYSTEM

ABSTRACT

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An electrode arrangement for an array of electrically-controllable elements comprises a series of generally parallel electrodes (16) each for extending along a respective line of the electrically-controllable elements, and a series of driver lines (20(1-6)) for receiving driving signals. Each electrode is connected to a plurality of the driver lines
10 each *via* a respective impedance (26).

Each electrode is so connected to at least three of the driver lines. Additionally or alternatively, the driver lines are so connected to the electrodes such that the driver lines cannot be split into a pair of arbitrary groups of the driver lines for which (a) each group
15 has generally the same number of driver lines and (b) each electrode is so connected to at least one of the driver lines in one of the groups and to at least one of the driver lines in the other of the groups. This enables the ratio of the number of electrodes to the number of driver lines to be increased.

20 The impedances in combination with a decoder (24) provide a decoding system which is arranged to perform a plural-stage process in determining which of the driver lines to stimulate in response to each electrode address value supplied to the decoder. This enables the network configuration of the impedances to be machine generated, and also enables the decoder to calculate on the fly which driver lines to stimulate in response to
25 each address value. Furthermore, different resolutions may be provided to enable groups of the electrodes to be addressed simultaneously.

The invention is applicable, for example, to liquid crystal displays, arrays of memory elements and arrays of sensors such as light-sensors.

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